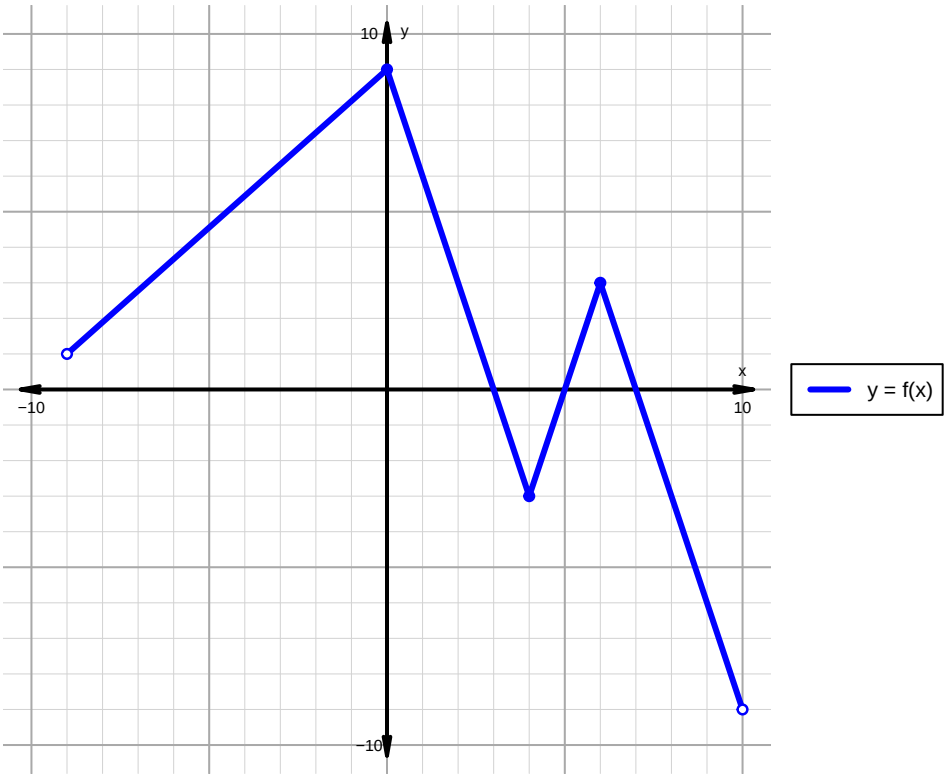
Name: Date:

## Intervals, Transformations, and Slope Solution (version 163)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-9, 3) \cup (5, 7)$ |
| Negative | $(3, 5) \cup (7, 10)$ |
| Increasing | $(-9, 0) \cup (4, 6)$ |
| Decreasing | $(0, 4) \cup (6, 10)$ |
| Domain | $(-9, 10)$ |
| Range | $(-9, 9)$ |

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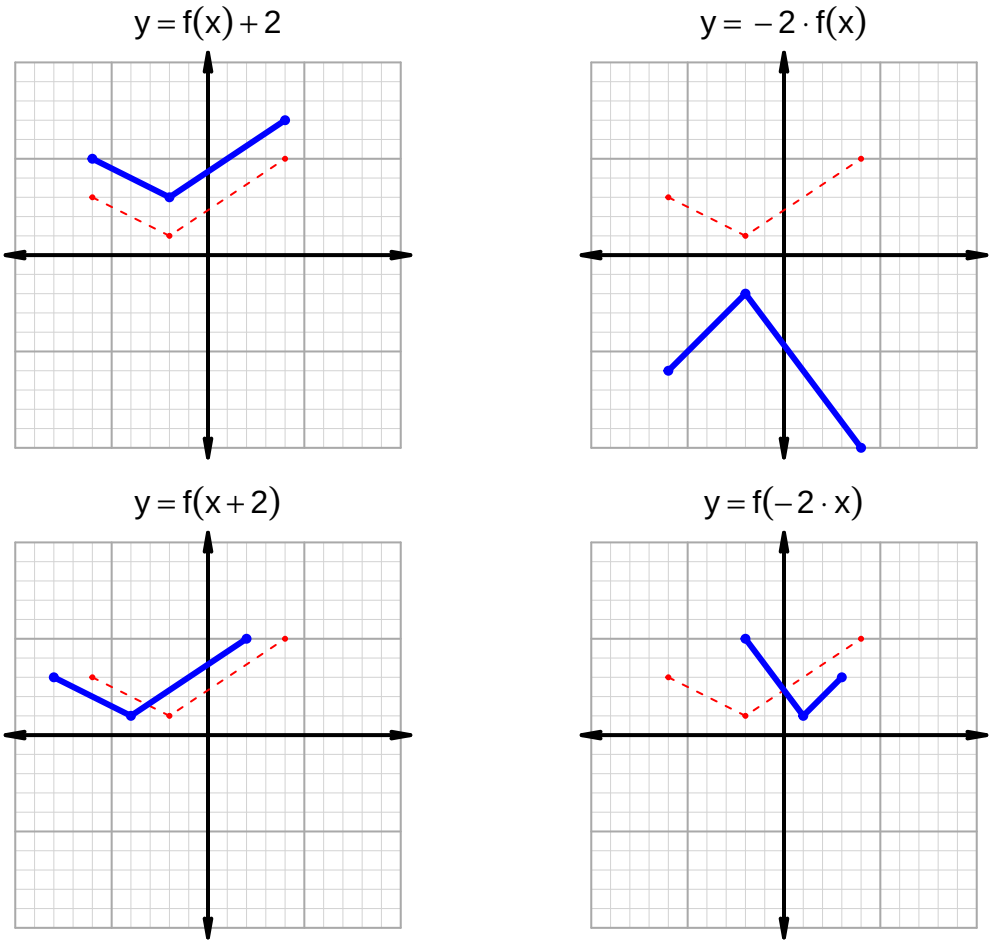
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 25$ and $x_2 = 65$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 25 | 96 |
| 65 | 71 |
| 71 | 25 |
| 96 | 65 |

$\frac{g(65)-g(25)}{65-25} = \frac{71-96}{65-25} = \frac{-25}{40}$

The greatest common factor of -25 and 40 is 5. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-5}{8}$$